1.4 Notes: Plates Converge or Scrape Past Each Other

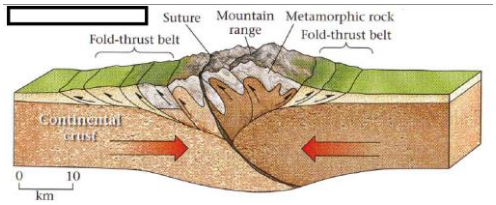
Think About…

- If new crust is created at divergent boundaries, why does the total amount of crust on Earth stay the same?

Tectonic Plates Push Together at Convergent Boundaries

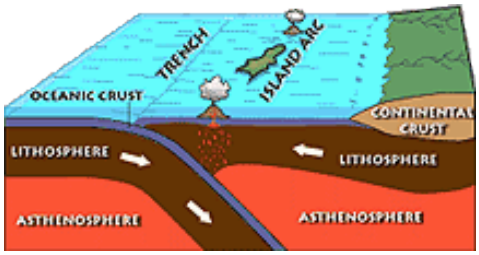
- *Convergent* boundaries are places where plates _____.
- Because the plates are pushing together, crust is either folded or destroyed at these boundaries.
- When one plate sinks beneath another, it is called _____.
- There are 3 types of convergent boundaries:
  - 1.Two continental plates meet
  - 2. Two oceanic plates meet
  - 3. An oceanic plate meets a continental plate

Continental-Continental Collision



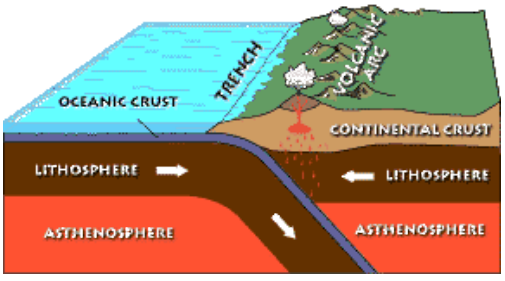
- A continental-continental collision occurs where two plates carrying continental crust push together.
- Because both crusts are the same _____, neither plate can sink below the other.
- If the plates keep moving, their edges will eventually crumple and _____.
- In some cases, the folded crust can be pushed up high enough to form _____.

Oceanic-Oceanic Subduction



- An oceanic-oceanic subduction occurs where one plate with oceanic crust _____, or subducts, under another plate with oceanic crust.
- The older plate sinks because it is colder and _____ than the younger plate.
- When the older crust reaches the asthenosphere, it _____ in the intense heat, thus getting destroyed and reabsorbed into the mantle.
- There are two main features that form at oceanic-oceanic subduction zones:
- Deep-Ocean _____:
  - Deep canyons that form in the ocean floor as a plate sinks.
  - The Marianas trench is the deepest trench in the world at _____ m (36,000 ft)!
- Island _____:
  - Form on the top plate, parallel to a deep ocean trench.
  - As the sinking plate melts, magma rises up through the top plate to build a series of islands.
- Examples of island arcs include the Aleutian islands of Alaska and the Philippine Islands.

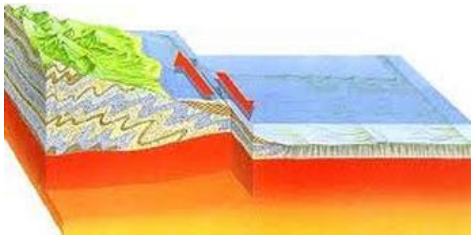
Oceanic-Continental Subduction



- An oceanic-continental subduction occurs when ocean crust sinks under continental crust.
- The oceanic crust sinks because it is colder and _____ than the continental crust.
- There are two main features that form at oceanic-continental subduction zones:

- Deep-Ocean _____
    - Just like at oceanic-oceanic subduction zones, trenches form as oceanic crust sinks below continental crust.
- Coastal _____
    - As oceanic crust sinks under a continent, the continental crust buckles to form a range of mountains.
    - Some of these mountains are volcanoes.
- The Cascade Mountains in Oregon and Washington were formed by oceanic-continental subduction.
- _____ is an active volcano that is part of the Cascade Mountains.

Tectonic Plates Scrape Past Each Other at Transform Boundaries



- At transform boundaries, crust is neither created nor destroyed.
- Instead, two plates simply move past each other in opposite _____.
- As the plates move, their edges scrape and grind against each other.
- Most transform boundaries occur on the _____, however they also occur on land.
- The San Andreas Fault in _____ is a transform boundary that is visible.
- If the Pacific and North American plates keep moving at their present rates, Los Angeles will be next to San Francisco in as little as _____ years!

The Theory of Plate Tectonics Helps Geologists Today

- Plate tectonics helps geologists explain Earth's past and _____ what might happen along plate boundaries in the future.
- Studying rock layers allows us to see what geologic events occurred in the _____.
- For example, the Appalachian mountains are evidence of an ancient convergent boundary
- The Appalachian Mountains match mountains found in Northwest Africa, which lets us know that the Eastern U.S. was probably next to modern day Northwest Africa in _____.

Review

____1. Which of the following is formed at a collision zone?

A. Mountain range
B. Volcanic island chain
C. Deep-ocean trench
D. Continental rift valley

____2. What happens when two oceanic plates meet?

A. Both plates sink into the asthenosphere.
B. The colder, denser plate sinks.
C. Both plates fold the rock between them
D. One plate slides past the other

____3. Where is crust neither formed nor destroyed?

A. Mid-ocean ridge
B. Continental rift valley
C. Transform boundary
D. Subduction zone

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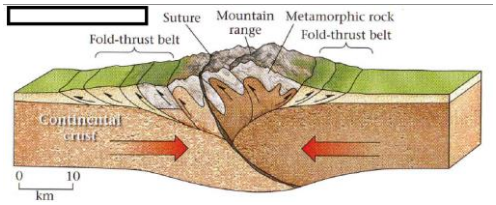

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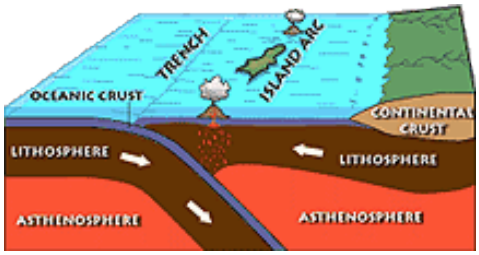

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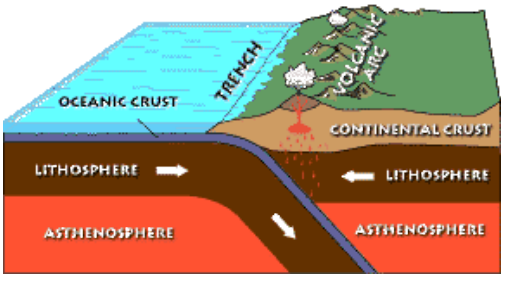

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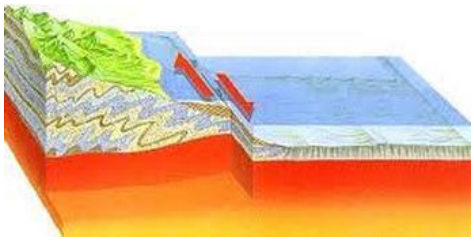

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D. Continental rift valley D. Subduction zone